Labor Turnover in Utah
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Analyzing Turnover Rates:
A Look at an Existing Methodology and the Creation of an Alternative

ABSTRACT - Labor turnover in the economy and within industries is a sought-after variable. Until the release of the Census Bureau's Local Employment Dynamics (LED) data, it was virtually impossible to measure labor turnover. At best, limited surveying gave some indication, but no data source as comprehensive as the LED data could be drawn upon to instill confidence. The Census Bureau calculates and publishes turnover rates using the LED data. But an understanding of their methodology and variables measured can easily lead one to conclude that much turnover activity is excluded and not measured. Fortunately, users with access to the comprehensive LED database can tap this resource and, by forging their own calculation, include turnover activity that the Census Bureau's calculation probably excludes. Developing an alternative methodology will be the focus of this paper.

Introduction

A turnover rate is generally thought of as the speed or tempo at which laborers move in and out of existing jobs within a business or industry over a given period of time. In order to effectively measure turnover in the economy, a comprehensive source of individual-worker data is necessary to gauge the amount of in-and-out activity. Until recently, that comprehensive database has been elusive. However, a relatively new data source put together by the U.S. Census Bureau, called Local Employment Dynamics (LED)[1], qualifies as that missing comprehensive data source.

LED is a voluntary partnership between state labor market information agencies and the U.S. Census Bureau to develop new data augmenting a local labor market profile. Nearly all states are currently acting as partners and data providers to this program. Utah began its program participation in 2005.

The LED data is valuable in that it introduces a whole new element for analyzing Utah's labor force. Through it, Utah's industrial labor makeup can be categorized and quantified by age and/or gender designation. It also measures the volume of job hiring and job separations, among other variables. This now makes calculating turnover rates possible, even by industry, age, or gender. These rates are valuable for comparison not only among other industries, but also for comparing Utah's industries against other states'.

This in itself makes the LED turnover data valuable. But, having said this, we have reservations about the way the LED turnover rate is calculated. We feel the defining variables, as measured through the LED methodology, exclude too many workers, and therefore produce an underestimated and overly conservative turnover rate. It is the aim of this study to present an alternative turnover calculation using the LED data. We feel the end result is a more inclusive model producing a better measurement of turnover. However, it does come at a price. By creating this measurement via our own methodology, even though we are using LED data, the results cannot be compared to turnover rates in other states as published by the LED program, as this new alternative methodology is not used by any other state as far as we know. The data can be used to

[1] http://lehd.did.census.gov/led/index.html

compare turnover rates by industries within Utah, but trying to compare it outside of Utah is not possible with this alternative approach. So even though the alternative method produces a truer picture of turnover, it does stand as a lone variable exclusive only to Utah.

Why Calculate One's Own Rate?
In short, the current LED methodology only includes workers who can be identified with the same employer across a three-quarter calendar span. This means a worker must be on the job for a minimum of five months. Anyone working less than that is not included in the LED turnover calculation. We feel that exclusion misses a large proportion of turnover activity. From the standpoint of the employer, short-term, rapid churning within the labor pool probably identifies the very nature of any turnover grievance. Granted, labor turnover from any duration of time may be a nuisance, but only measuring turnover from a pool of "more stable labor" can easily understate the entire scope of labor turnover.

In this writing, we plan to offer and develop an alternative turnover measure. It will include that short-term labor churn that the LED program excludes. As a result, we feel this alternative turnover measurement gives a more inclusive and realistic picture of turnover in Utah. Although our calculations are more inclusive and possibly more realistic, they stand alone and are unavailable for use in comparison with the original LED data. The value in using the existing LED data is that it can be compared against other states' turnover data as measured by that same program, even though the entire scope of those published turnover rates is probably low. We feel its existing value lies in its use for comparison, not for use in its turnover levels exclusively.

What is a turnover rate?
Generically, it is the rate at which a number of existing jobs are vacated and refilled within a given time period. For example, we could ask, for every 100 existing jobs within a month, how many were vacated and refilled? If 12 were, then the turnover rate would be 12 percent (12/100). If the same job saw three different workers come and go, then that would be counted as three turnovers. The key concept in this definition is that it must be movement out of and into an **existing** job.

What Don't We Agree With in the LED Methodology?
We disagree with two points. The first is that LED's calculation is not built to focus only upon existing jobs. Unfortunately, new and eliminated jobs are also partially included. Therefore, it is including workers in its turnover calculation that don't meet criteria we feel qualifies as turnover. We feel these non-turnover transactions can be reduced within the methodology, and our calculation makes that effort.

If a new job develops and is filled, that cannot qualify as turnover because the job never existed before to be turned over. This same restriction also applies to a job that is eliminated. It cannot be turnover if there is no longer a job for someone to slide into. Therefore, turnover must be restricted to movement out of and into existing jobs.

The other differing factor lies in who is included in the LED calculation. LED uses a "stable" employment concept, in that someone must show earnings with the same employer for parts of three consecutive quarters to even qualify to be counted in the turnover mix. We feel too much additional turnover activity is lost when limiting the labor pool to just workers whose same-employer employment spans three calendar quarters.

What if I hold a job for two weeks and then leave? The employer then fills my job with someone else. From the employer's standpoint, isn't that a turnover? Does the two-week time period nullify that there was a personnel change within that job? We think that it does not.

Can using only a stable employment base and eliminating the rest really make that much of a difference—enough to justify creating an alternative method? The answer to that question is an emphatic, "yes". Let's look at the numbers to illustrate why. No matter which method is used, hires and separations are the defining variables in the calculation. In 2006, if all Utah separations are included, then total separations equal 262,800. If only the "stable" workers are kept and the rest weeded out, then stable separations only sum to 102,100. The difference between those two numbers is 160,700 separations. That is 61 percent of all the 262,800 separations in 2006. That elimination is more than a trifle when trying to paint a reliable turnover profile.

We have found that the LED definition, even with its restrictions, does paint a good picture for some industries—like the utilities industry, whose high wages entice limited turnover—but drastically understates turnover rates in high-labor-churn areas like the leisure and hospitality industry, or administrative support.

The Nuts and Bolts of LED

Did we mention that despite this disagreement, we really like the LED database? It is a wonderful set of variables that provides a wealth of new profiles of the labor force. In all the LED variables and the LED calculations, it is only the turnover rate that caused us trepidation.

To fully understand our concern, let's take time to talk a bit about the LED data and its structure. It's important to our understanding of these turnover rate calculations and our argument for creating an alternate calculation.

LED data comes from individual state unemployment insurance records, which are very comprehensive and inclusive. LED turnover rates are calculated and published for each industrial sector within each participating state. These can be found at the two-, three-, or four-digit NAICS code designation.[2] Rates are also available by gender and age groups, also within NAICS codes.

Not all states have data available through LED, as it is a cooperative arrangement generated between each state and the Census Bureau. It is up to individual states to enter into this program and provide the Census Bureau with that state's unemployment insurance records. Currently, most states are participants, and it appears that the remaining states are taking steps to also sign on. Utah became a partner state in 2005.

Here's how the LED cooperation works: All states administer unemployment insurance programs—the program that pays unemployment benefits to those who are laid off from a job. Your unemployment benefit amount is based upon your past earnings. You may ask, "How do states know what my past earnings are?" They know because your employer tells them. It's part of the employer's responsibility under each state's unemployment insurance laws. All businesses that hire workers must report who they employ and how much they paid each in total quarterly (three month) wages. This builds

[2] NAICS is the North American Industry Classification System. http://www.census.gov/epcd/www/naics.html

employee unemployment insurance (UI) records. Employers report this information on a quarterly basis—four times a year. Because of this, LED is also updated on a quarterly basis and is published as quarterly data.

These UI records reveal who is employed and in what industries. But there is much these records do not include, such as gender and age. The UI records only include Social Security Number (SSN) and total wages paid. Enter the Census Bureau, which does have gender and age information by SSN. If the UI wage records could be combined with Census records, then the SSN matches would produce age and gender demographics for the labor force. Now questions like, "What industries are susceptible to large number of baby boomer retirements?", or, "What industries hire many teens?" can be answered.[3]

That is the concept behind the Census Bureau/state partnership called LED. State UI records are sent to the Census Bureau, and Census does the data marriage and the number crunching. The aggregated information is then returned to the participating states, and "canned" or packaged employment and industry information is posted for each state on the LED website. Individual records are never revealed and confidential data is never given to the states.

The Census Bureau produces the employment and wage tables made available to the public. They generate the numbers, they maintain the website, and they do the coordination and thought behind the production, use, and presentation of the data.

There is one more caveat with the data. The LED employment numbers will not match the official employment numbers published by each state. The LED data is missing some employment counts that the states may otherwise include. One example is federal government employment, although Census is working to include this data in the future. But even with these omissions, LED is quite comprehensive, and even though the employment magnitudes may come up short, the trends and characteristics gleaned from the LED data are still relevant and dependable. And, in the case of age and gender, there is no other option available anywhere else, as the state employment numbers cannot make that distinction—hence the reason LED sprang into existence.

Get Ready for the Mathematics

Did we mention that we really like the LED data? Let's return to our original question. What is a turnover rate? First let's ask a more basic question—what is turnover? Here is how LED views a turnover. We'll lay it out first, and then explain the technicalities. The turnover rate comes via a mathematical ratio, with the numerator being the average of stable job hires and stable job separations, and the denominator being all stable employment. Don't get hung up yet on the inclusion of "stable" in the definition. We'll develop that in just a minute. Just look at the mathematics for now. The basic concept of a turnover rate is a measurement of the movement out of and into an existing job—the rate at which a new face fills an existing job—in relation to the total number of jobs.

As you can imagine, time plays a role here. How often is one talking about a new face in the job? In the case of LED, we are locked into a quarterly time frame—the sum of a three month period, referenced upon a four-quarter segmentation of the calendar.

[3] http://jobs.utah.gov/opencms/wi/pubs/trendlines/past.html

January, February, and March represent the first quarter; April, May, and June the second quarter, and so forth. The LED data is based upon quarterly state UI employment counts, so segmenting the data to a shorter time frame is not possible with the LED data.

When there is turnover within a job, there are two workers involved—the one who left the job, and the one who took the job. The UI records that feed the LED system would see Worker #1 no longer employed with Employer XYZ (a separation), and Worker #2 now employed by Employer XYZ (a hire). Therefore, to see the actions of Worker #1 and Worker #2 as one transaction, Workers #1 and #2 are added together, then divided by 2 (averaging). That way, what Workers #1 and #2 have done is viewed as one turnover transaction. This is why in the numerator of the LED turnover rate measurement, the sum of stable hires, and stable separations are averaged.

This “movement activity” in the numerator has to be compared against something to measure its magnitude. In this case, it is the total amount of employment—the number of jobs.

Oftentimes, data sets come with inherent imperfections, and this “noise” must be grudgingly accepted. When LED sees a hire and a separation, it does not know if either are part of a turnover transaction. A new job can be created with someone hired into it, and it will show up as a hire, but it is not a turnover since that job never existed before. The same can be said with a separation. An existing job can be eliminated. The loss shows up as a separation, but it would not be part of a turnover because no new worker will be hired. The job has been eliminated. Unfortunately, these non-turnover events are included in the LED hires-and-separation data and are not parsed out. Therefore, they are accepted as part of the noise associated with the LED statistical analysis and the imperfections of measurement. LED’s averaging of the numerator makes an effort to reduce this noise, but we believe that, through our alternate calculation, there is a better way to reduce this noise.

The Census Bureau defines stable employment as someone with positive earnings from the same employer for three consecutive quarters. If we label the current quarter *t*, then stable employment is someone employed in quarters *t*, *t-1*, and *t-2*. In other words, if I am with my employer for this quarter, last quarter, and two quarters ago, I can now carry the Census Bureau label of a stable job.

We’ve explained the concept, but we don’t quite have the dates right. To get everything in line with how Census does it, let us identify the variables used again, then give you the Census definition.

Here are the variables involved as labeled by the Census Bureau in the LED program. If you feel the mathematics will bog you down, then jump to the next section:

HirAS
SepS
EmpS

Here is the LED turnover rate formula:

$$\frac{\frac{1}{2}\left(HirAS + SepS\right)}{EmpS}$$

Here's what it means, using the LED definition as defined by the Census Bureau:

HirAS — Hires, All Stable Jobs — A worker *i* is defined as a flow into full-quarter employment with employer *j* in quarter *t* if *i* has positive earnings at *j* in *t*, *t-1*, and *t+1* but no earnings from *j* in *t-2*.

You probably had to read that several times before you got it, if by now you have even gotten it. Math can be Greek to a lot of people—even the Greeks. In effect, it is saying that a worker must show employment with the same employer for three consecutive quarters to qualify as a new hire. The data also lags by one quarter, since you have a *t+1* variable. In other words, you can't label someone as a stable hire in 4th quarter 2006 until you know that they are still employed with that same employer in the next quarter, 1st quarter 2007 (the *t+1* when *t* is 4th quarter 2006). Are you confused yet? If so, get in line, you're probably not the only one. The bottom line is that there is a one quarter lag in the ability to populate this data point.

SepS — Separations, Stable Jobs — A worker *i* is defined as a flow out of full-quarter employment with employer *j* in quarter *t* if *i* has positive earnings at *j* in *t*, *t-1*, and *t-2* but no earnings from *j* in *t+1*.

Again, you have to lag this variable. You have to wait an extra quarter (*t+1)* to see if someone is no longer employed with that employer. If I show earnings with my employer in quarter X but then leave the job, you won't know that I left that employer (in quarter X) until you see that I no longer have earnings with that employer in the next quarter (X+1). Only then can you make the assumption that I left that employer sometime during the previous quarter (X).

EmpS — Employment, Stable Jobs — A worker *i* is full-quarter employed with employer *j* in quarter *t* if worker *i* has positive earnings at *j* in *t-1*, *t*, and *t+1*.

Again, you have to lag this variable for the same reasons previously explained.

Hopefully you're not too confused, especially about the lag part. If you are getting hung up on why this variable is lagged, just forget about why the variable is lagged and accept the fact that it is delayed by one quarter. Those who can read mathematics as non-Greek have thought this through, so trust them. The reason this lag is mentioned is that if you went on the LED website and tried to pull up numbers for these variables, or looked for a turnover rate for the most recent quarter, there would be no data available. You have to begin with the previous quarter to find data. Sometimes data variables are like good wine; they just take time to develop.

Now to Our Alternative

That was an explanation of how the LED system is defining and measuring turnover. It has its limitations, and is a conservative measurement of turnover. Since it only uses stable employment, it leaves a lot of people out of the equation. And, it also includes portions of hires and separations that are not part of a turnover event. For these

reasons, this paper and its research will also develop and present another turnover rate that we feel is more precise, but by its nature will be a higher turnover rate. We aren't concerned by this increase, because the saying in good research is to let the data take you where it will, not where you want it to go. We are just interested in laying the data out and letting it say what it says.

We are using LED data to make our calculation, but the data points used are not available to the lay observer through the LED website. We have used the Utah expanded data file returned to us by the Census Bureau, and have utilized other available variables from that file.

Which measurement to use or consider is left up to the reader. The people behind LED will readily concur that their published turnover rates are not the only possible way to measure this activity. But note that our alternative look at turnover is not available on the LED website, nor can the variables used be obtained from the website.

Here is our alternative calculation:

$$\frac{MIN(HirA, Sep)}{Emp}$$

Here is what we are thinking: In the numerator, we are taking the **minimum** of either the number of all hires in a quarter, or the number of all separations. Then we compare this against the employment level at the beginning of the quarter (the denominator), and the result is our turnover ratio.[4] There is no stable criterion used here, so short-term, mid-term, or long-term employment are all considered.

Why the minimum of the variables in the numerator? Let's answer with a simple made-up illustration. Suppose in one quarter 100 people leave 100 jobs and 100 people are hired back in. All 100 transactions qualify as turnover. There has to be a one-to-one match between separations and hires to be a turnover. Now assume in the same quarter a new company came to town and hired 100 new workers. Hires are now 200, and separations are 100. The hires now include 100 additional workers who don't qualify as turnover, but the 100 separations matching the original 100 hires still qualify as turnover. So, to eliminate the additional 100 hires that are new and not turnover, we choose only the separations (which is the lesser or minimum of hires and separations). By taking the minimum, we ensure that there will be an equal number attainable of hires and separations, which is the criterion we must achieve to qualify a turnover.

The same can be said when a company leaves or shuts down. Suppose separations are now 200 and hires 100. One hundred hires and separations qualify as turnover, but the additional 100 separations do not, because they exceed hires, showing that those separations were not a turnover event but instead a job elimination. We realize that even the minimum of hires equaling separations still doesn't guarantee that all of it was purely turnover, but the largest that turnover can possibly be is the minimum of the two numerator variables.

[4] We have chosen *Emp* (beginning of quarter employment) instead of *EmpEnd* (end of quarter employment) for the same reason as when you calculate a growth rate, you compare your change against the starting or reference point, not the ending or resultant point.

In both cases, whether hires or separations are the minimum, the turnover events cannot exceed 100. Here is one of the ways we disagree with the way LED would calculate its turnover rate. The LED calculation would have taken the average of hires and separations in the numerator. For 200 hires and 100 separations, that would average to 150. So LED would have labeled 150 as turnover, but our example was deliberately built to show that 100 is the maximum number of turnover events. Therefore, the LED formula is allowing 50 non-turnover events to be included as turnover. This is one of the disagreement points we have with the LED calculation.

The other involves that stable component. Let's return to our example. Let's say that the 100 workers who became the 100 separations all got those jobs in the prior quarter, then left in the current quarter. Under the LED "stable" criteria, none of those 100 separations would have even been evaluated as turnover, because they were not turnovers out of jobs held across three quarters. In order for those 100 separated workers to be included in the LED calculation, those separated workers would have had to work for that same employer covering part of the current quarter, all of the previous quarter, and part of the quarter before that. Therefore, in our example, LED would have had zero separations in its numerator, because our example did not include stable workers (employed by the same employer for three consecutive quarters). We believe that stable criterion eliminates a lot of workers and workplace activity, more so in some industries than in others—but we believe it affects all industries.

Our calculation not only looks to have that balance between a job separation and a job hire (the very nature of a turnover), but also to include all workers, regardless of duration of employment.

Comparing the Differences

The difference between our alternative turnover measurement and the LED measure is nearly double. For example, our alternative method calculated a 23.3 percent quarterly turnover rate as an all-industry average for Utah in 2006. The LED method places its all-industry quarterly average at 12.5 percent, and substantiates our claim that it is a conservative turnover calculation. This near doubling of the difference is a reflection of the LED method excluding the short-term workers who do not attach themselves for an extended period to one employer. The fact that our alternative methodology percentage is nearly double speaks to the number of workers who end up being excluded from the LED calculation.

This becomes even more pronounced when looking at individual industry turnover rates. Let's start with industries where we know turnover is high—low-paying, serviced-based industries. Two that come to mind are the accommodation and food service area (hotels and restaurants), and administrative support (dominated by call centers and placement agencies). In both of these areas, general observation strongly suggests that there can be much short-term employment in these areas, employment that would be of such short duration as to not be captured in the LED data.

In the accommodation and food service industry, the 2006 industry-average quarterly LED turnover rate measures 21 percent. The same measurement through our alternative method produces a quarterly turnover rate of 40.7 percent. That is a noticeable difference. In the administrative support industry, those percentages are 22.2 percent

and 45.2 percent, respectively. Again, these are noticeable differences and suggest a large number of workers excluded from the LED calculation.

Conversely, one would expect that industries where we do not suspect high turnover would show a lessening in the disparity between the LED and the alternative methodologies. Industries that would fit this criterion would be industries with high wages and/or a good wage and benefit package. Industries like manufacturing, healthcare, and public administration come to mind. Here we find that the turnover disparity is noticeably less. LED manufacturing turnover is 9.0 percent. With the alternative method it is 13.8 percent. Healthcare has rates of 9.8 and 15.7 percent respectively, while public administration is 6.1 and 9.7 percent. Again, the more stable the employment in an industry, the less disparity between the LED and alternative-methodology turnover rates.

Can Turnover Be That High?

Our alternative calculation method produces a higher turnover rate. The all-industry average for 2006 is 23.3 percent—and that is a quarterly average. If you multiply it by four you get a yearly average of 93 percent. Do all businesses turn over almost all of their personnel each year? Of course not. This is instead a matter of a few bad apples spoiling the whole bunch.

Let's look at the accommodation and food services industry again. Its quarterly turnover rate is 40.7 percent. That's 163 percent for the year. That means the entire staff turns over one and one-half times. Do all of their workers move on to new jobs? Not necessarily. For example, you can have one waiter in a restaurant that stays throughout the year. You can have another waiter position at the same restaurant that, for whatever reason, had five people populate it during the year. There are two positions, but one of those positions turned over five times during the year, while the other didn't change at all. It's the five turnovers in the one position that characterizes the industry with high turnover. The numbers don't specifically imply that all positions turn over. Instead, there is more likely a lot of turnover within the existing positions, but not necessarily all positions.

If this all-industry, yearly-average turnover rate of 93 percent is considered high, its foundation can be traced to four industries—construction, retail trade, administrative services, and accommodation and food services. Together, these four industries make up 35 percent of all employment, yet constitute 52.2 percent of all job separations (separations were the minimum variable of the numerator for 2006). In other words, these four industries account for a disproportionate amount of job churning. A few "bad apples" spoil the whole bunch. We use "bad apples" tongue-in-cheek, because these industries aren't doing anything wrong. Instead, it is just the nature of their existence. The common thread across these industries is that they largely utilize low-skilled labor (construction has a slightly higher skill base than the others), and therefore pay low wages (construction's average pay is closer to the statewide average). Because of this, their yearly turnover rates exceed 100 percent.

Other Turnover Characteristics

As might be expected, turnover rates vary based upon age, declining with increased age. The largest amount of turnover occurs in the youngest age group. Those aged 15 to 24 have a quarterly turnover rate of 44 percent. To put this in perspective and

contrast, the next oldest age group, 25 to 35 year-olds, has the next highest turnover rate, yet that group's 23 percent turnover rate is only half of the younger group.

This shouldn't come as a surprise, as younger workers have many characteristics that produce high turnover. They are just getting started in the labor force and therefore are generally always looking for jobs with better wages. Many are still looking to get settled into that career job. Many may still be in school and working part-time, therefore not really attached to a job. Also, skill levels advance rapidly in this age group, and thus advancing job opportunities abound.

Even though the reasons for these young groups having high turnover are expected, their size has a large influence upon Utah's overall turnover picture. Utah's labor makeup stands in marked contrast to all other states in the nation. These two age groups—15 to 24 year-olds and 25 to 34 year-olds—account for 47 percent of Utah's labor force. All other states in the nation have these age groups account for less than 40 percent of their labor force, with the U.S. average being 35 percent. The point is that the two groups with the highest inherent turnover activity influence the Utah labor market more than any other state.

As the age groups increase, the turnover rates decline. This makes sense as older workers not only tend to be less inclined toward change, but in many cases are entrenched in their career jobs, also looking toward and building upon their retirement and benefit packages. The 35 to 44 age group's turnover rate is 17 percent. The 45 to 54 group is 13 percent, and the 55 to 64 age group 12 percent. Those over the age of 65 see an increase in turnover to 18 percent, but again this makes sense, as this group can be living off retirement on one end and looking for that comfortable and supplemental new job fit on the other end.

Does gender make a difference? Not much. The overall turnover rates for both male and female are 23 percent. There are some subtle differences if you break the boys and girls into different age groups. Young males have a little bit higher turnover than do young females, but it is only noticeable in the 15 to 24 year age group.

One final observation concerning turnover—turnover tends to rise when the economy is good, and declines when the economy is bad. This can be noted by following turnover during this decade. The booming 1990s economy actually reached its peak in early 2001. That year, the quarterly average turnover was almost 25 percent. Two years later, in 2003, after the economy's rapid decline into recession, turnover had dropped to 21 percent. This isn't a drastic difference, but it does show the effects and contrasts of a slow and fast economy upon turnover.

It appears that a vibrant economy produces more economic opportunities. Labor churning, which is really what turnover measures, seems to accelerate as the economy improves. New job creation can be a factor. New jobs themselves can't be a turnover measure, but the people who might leave an existing job to take a newly-created job will be part of a turnover transaction, as the hiring behind their vacated job is a turnover. Conversely, a slow-growing or even contracting job market makes workers timid and nervous. With limited opportunities to leave one job for another, workers tend to stay put in their existing job, even if it's not ideally what they would like to do.

In Conclusion

Labor turnover in the economy and within industries is a sought-after variable. Until the release of the Census Bureau's LED data, it was virtually impossible to measure labor turnover. At best, limited surveying gave some indication, but no data source as comprehensive as the LED data could be drawn upon to instill confidence. The Census Bureau calculates and publishes turnover rates using the LED data. But an understanding of their methodology and variables measured can easily lead one to conclude that much turnover activity is excluded and not measured. Fortunately, users with access to the comprehensive LED database can tap this resource, and by forging their own calculation, include turnover activity that the Census Bureau's calculation probably excludes. That has been the focus of this paper. By developing a more inclusive definition and resultant methodology, we discover that the Census Bureau method may be understating turnover rates by half. A more inclusive measurement not only includes more workers, but also yields a higher, but we think more precise, measure of turnover. The drawback with this alternative method is that unless other states adopt this methodology as their measurement, Utah's alternative turnover measurement cannot be used for cross-state comparison.

Utah
Quarterly Turnover Rates (%)

Industry	2001	2002	2003	2004	2005	2006
Total	24.7	23.1	20.9	21.4	21.8	23.3
Natural Resources	41.2	37.8	37.5	39.1	38.5	40.1
Mining	19.0	16.5	16.0	19.6	21.1	23.7
Construction	37.0	34.4	30.6	31.1	31.9	32.6
Manufacturing	13.1	11.6	11.1	12.2	12.2	13.8
Wholesale Trade	16.4	14.7	14.0	13.1	13.7	14.9
Retail Trade	26.2	23.8	21.2	22.9	24.4	25.7
Transportation/Warehousing	20.5	18.9	16.8	22.8	19.1	19.2
Utilities	6.9	6.7	6.4	6.1	5.2	6.2
Information	25.5	23.5	22.0	20.5	22.2	24.4
Finance and Insurance	14.1	13.0	15.9	12.7	12.3	13.0
Real Estate and Rental and Leasing	27.4	25.4	24.5	22.0	22.2	22.8
Professional and Technical Services	23.5	23.0	20.9	20.8	19.8	20.8
Management of Companies	17.4	15.2	13.2	12.9	14.4	15.3
Administrative and Waste Services	48.1	48.6	46.5	47.2	45.2	45.2
Educational Services	14.9	14.7	13.0	12.8	13.0	15.7
Health Care and Social Assistance	17.9	16.1	14.1	13.9	14.0	15.7
Arts, Entertainment, and Recreation	36.3	43.4	35.0	34.1	35.5	36.0
Accommodation and Food Services	42.6	39.1	34.5	35.9	38.1	40.7
Other Services	29.4	29.0	25.6	25.9	27.5	28.0
Public Administration	10.5	10.5	9.4	9.4	10.4	9.7

Source: U.S. Census Bureau, Local Employment Dynamics
MIN(HirA,Sep)/Emp

Utah

Average Quarterly Turnover Rates Per Year

Comparison: Alternate Methodology and LED Methodology

Industry	2001	2002	2003	2004	2005	2006
Total	24.7	23.1	20.9	21.4	21.8	23.3
LED Total	13.7	12.2	11.6	11.8	12.2	12.5
Natural Resources	41.2	37.8	37.5	39.1	38.5	40.1
Natural Resources	15.7	17.7	13.1	12.6	14.1	13.6
Mining	19.0	16.5	16.0	19.6	21.1	23.7
Mining	10.5	8.3	8.9	10.3	12.0	11.6
Construction	37.0	34.4	30.6	31.1	31.9	32.6
Construction	17.0	15.7	14.8	14.5	15.1	15.5
Manufacturing	13.1	11.6	11.1	12.2	12.2	13.8
Manufacturing	10.2	8.8	7.5	8.6	8.8	9.0
Wholesale Trade	16.4	14.7	14.0	13.1	13.7	14.9
Wholesale Trade	10.9	9.6	9.0	9.1	9.0	9.7
Retail Trade	26.2	23.8	21.2	22.9	24.4	25.7
Retail Trade	15.6	14.4	12.7	13.0	14.5	15.3
Transportation/Warehousing	20.5	18.9	16.8	22.8	19.1	19.2
Transportation/Warehousing	12.0	11.1	9.2	11.5	11.4	11.1
Utilities	6.9	6.7	6.4	6.1	5.2	6.2
Utilities	3.9	3.7	3.8	3.4	3.9	3.4
Information	25.5	23.5	22.0	20.5	22.2	24.4
Information	15.9	12.6	12.7	11.8	11.6	12.9
Finance and Insurance	14.1	13.0	15.9	12.7	12.3	13.0
Finance and Insurance	11.7	10.1	11.5	10.2	9.5	9.6
Real Estate and Rental and Leasing	27.4	25.4	24.5	22.0	22.2	22.8
Real Estate and Rental and Leasing	16.0	14.8	13.8	13.1	14.0	14.1
Professional and Technical Services	23.5	23.0	20.9	20.8	19.8	20.8
Professional and Technical Services	13.7	12.2	12.0	11.7	12.3	12.4
Management of Companies	17.4	15.2	13.2	12.9	14.4	15.3
Management of Companies	12.4	10.9	9.0	9.0	9.9	10.1
Administrative and Waste Services	48.1	48.6	46.5	47.2	45.2	45.2
Administrative and Waste Services	23.6	22.0	23.1	23.6	22.3	22.2
Educational Services	14.9	14.7	13.0	12.8	13.0	15.7
Educational Services	7.7	7.1	7.0	7.2	7.4	7.5
Health Care and Social Assistance	17.9	16.1	14.1	13.9	14.0	15.7
Health Care and Social Assistance	12.9	9.7	9.2	9.4	9.5	9.8
Arts, Entertainment, and Recreation	36.3	43.4	35.0	34.1	35.5	36.0
Arts, Entertainment, and Recreation	21.0	22.1	20.7	20.7	19.7	19.7
Accommodation and Food Services	42.6	39.1	34.5	35.9	38.1	40.7
Accommodation and Food Services	21.7	20.5	19.0	19.7	20.3	21.0
Other Services	29.4	29.0	25.6	25.9	27.5	28.0
Other Services	15.0	14.3	13.5	14.0	14.5	14.7
Public Administration	10.5	10.5	9.4	9.4	10.4	9.7
Public Administration	6.2	5.6	5.3	5.6	6.2	6.1

Source: U.S. Census Bureau, Local Employment Dynamics

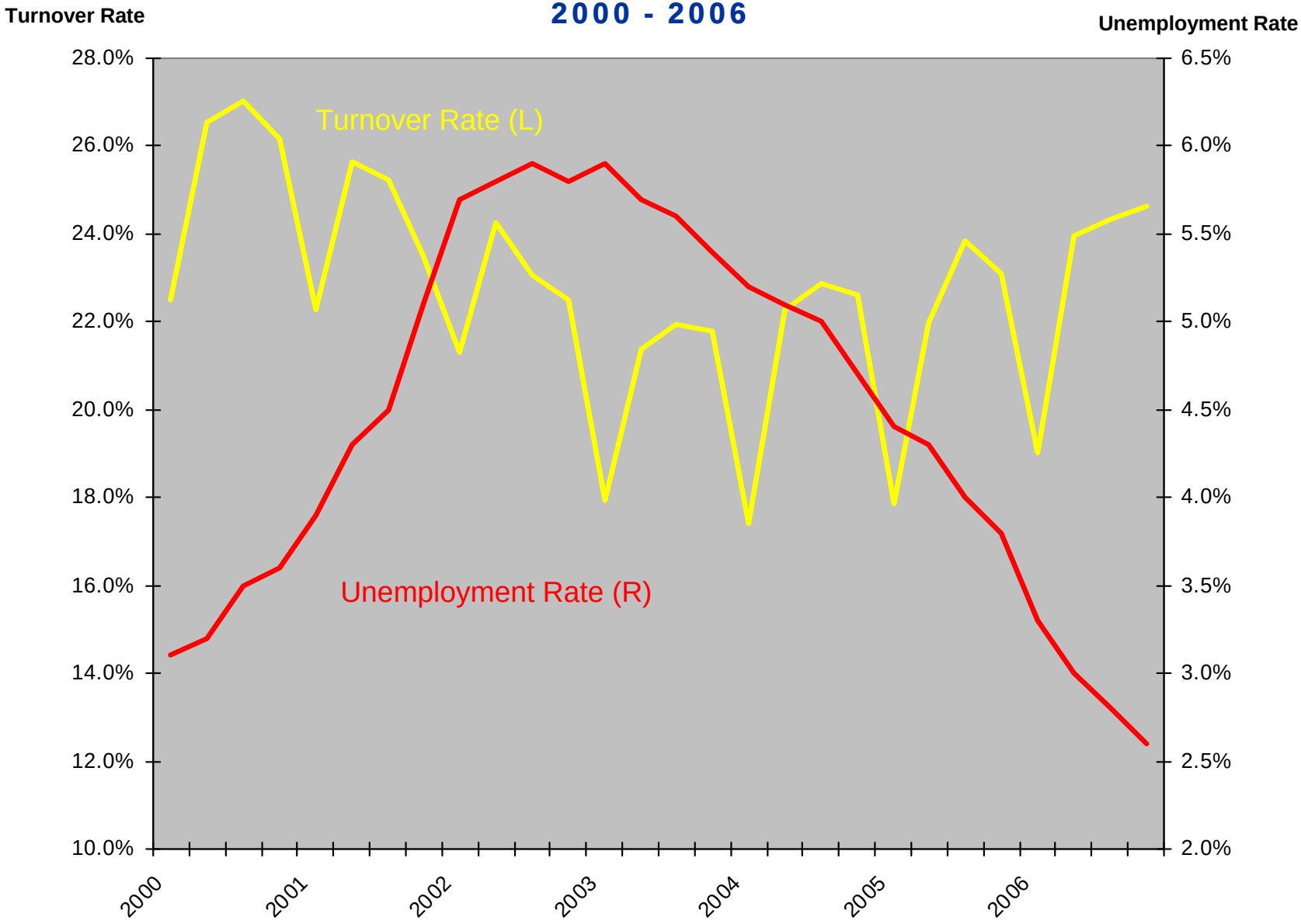
MIN(HIrA,Sep)/Emp

AVG(HirAS,SepS)/EmpS

Utah

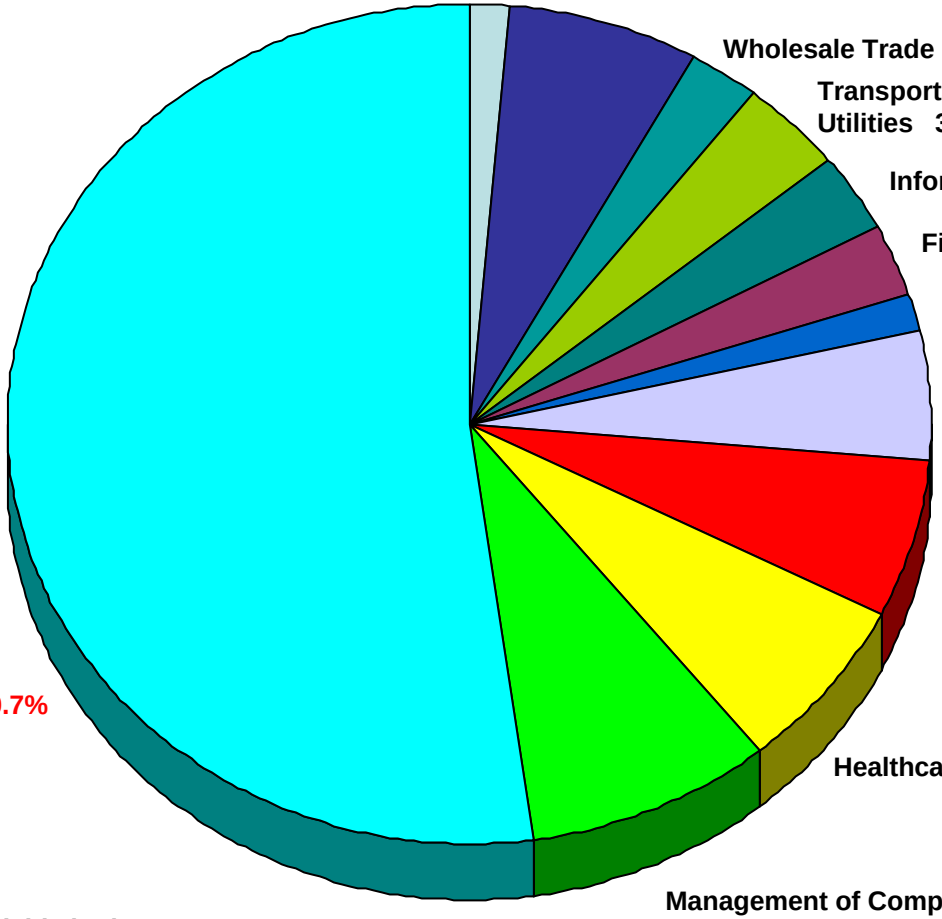
Turnover Rate and Unemployment Rate

2000 - 2006



Source: Utah Department of Workforce Services; U.S. Bureau of Census, LED data.

Percentage of Utah Job Separations*
By 2-digit NAICS Code
2006



Natural Resources; Mining 1.5%; 40.1%

Manufacturing 6.5%; 13.8%

Wholesale Trade 2.6%; 14.9%

Transportation and Warehousing; Utilities 3.5%; 17.6%

Information 3.1%; 24.4%

Finance and Insurance 2.7%; 13.0%

Real Estate and Rental 1.5%; 22.8%

Professional and Technical Services 4.9%; 20.8%

Education Services 6.2%; 15.7%

Healthcare and Social Services 6.7%; 15.7%

Management of Companies; Arts, Entertainment, Recreation; Other Services; Public Administration 8.6%; 20.7%

The four industries below make up 35% of the employment base, yet account for 52.2% of all job separations. All but construction have average wages far below the statewide average for all industries.

Construction; 32.6%

Retail Trade; 25.7%

Administrative Services; 45.2%

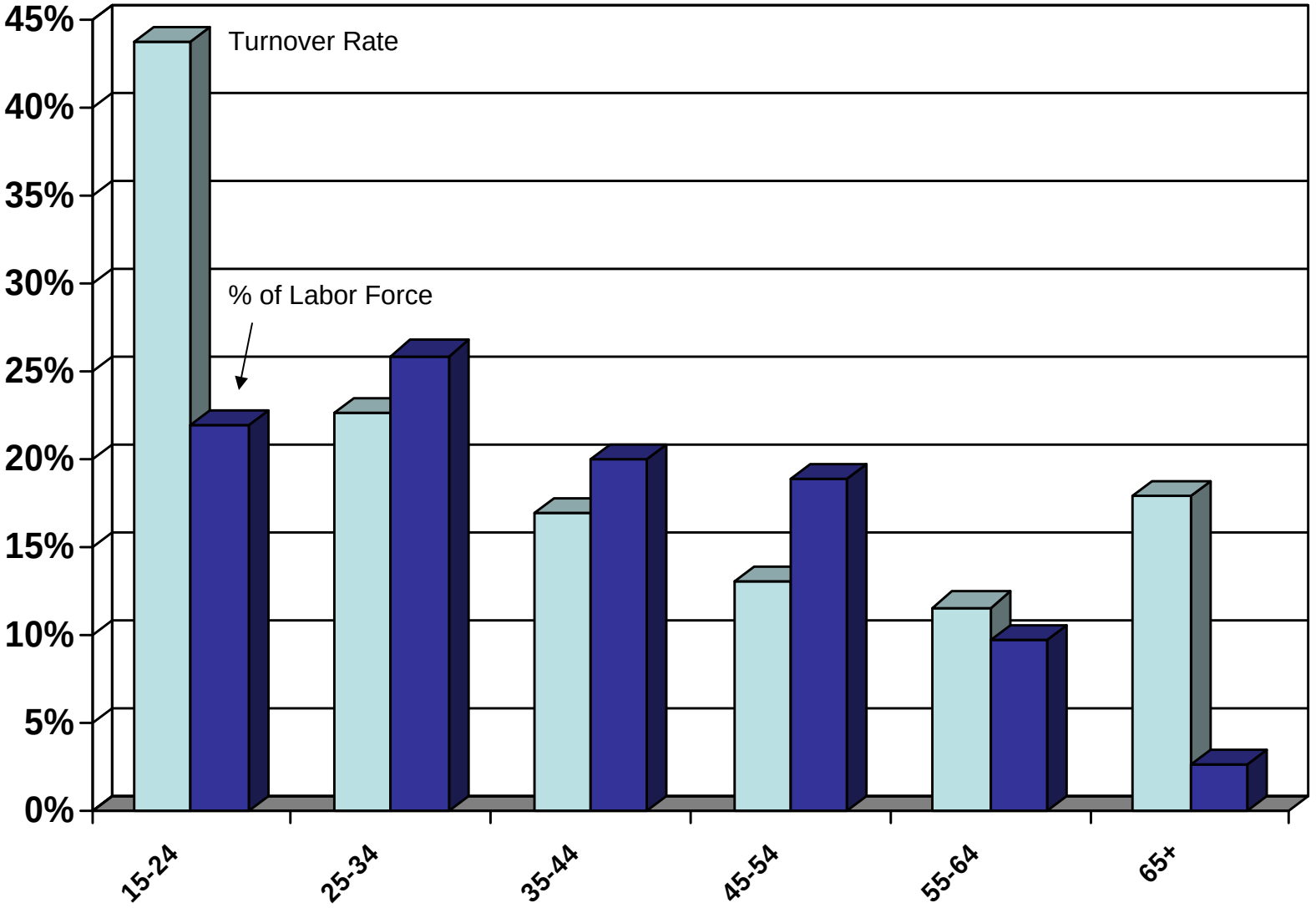
Accommodation and Food Services 40.7%

*** Separations were the minimum variable in the alternative-method numerator for 2006.**

Note: Red designates the industry's quarterly turnover rate

Source: Utah Department of Workforce Services using Census Bureau Local Employment Dynamics data.

Utah Turnover Rates and Labor Force Percentage by Age Groups 2006



Source: U.S. Bureau of Census, LED data.